

RemarksStatus of the Claims

The Office

rejected Claims 1-23 and 34-36 under 35 U.S.C. 112 as indefinite;
 rejected Claims 1-4, 6, 8-21, and 23 under 35 U.S.C. 102 as anticipated by U.S. Patent 4,684,255 (*Ford*);
 rejected Claim 5 under 35 U.S.C. 103 as obvious in view of *Ford*;
 rejected Claims 24-26, 28-37 and 40 under 35 U.S.C. 103 as obvious in view of U.S. Patent 5,539,517 (*Cabib*);
 rejected Claim 7 under 35 U.S.C. 103 as obvious in view of a combination of *Ford* and U.S. Patent 4,190,366 (*Doyle*);
 Rejected Claims 27 and 38 under 35 U.S.C. 103 as obvious in view of a combination of *Cabib* and *Doyle*;
 Asserted a provisional nonstatutory double-patenting rejection of Claims 22 and 39.

In this response, Applicant:

Amends Claims 1, 16-19, and 34-36 to cure the rejections under 35 U.S.C. 112;
 Amends Claim 1 to more specifically define the invention claimed therein;
 Identifies limitations not taught by the cited art, and traverses the rejections under 35 U.S.C. 102 and 103.

Applicant appreciates the Office's thorough and detailed explanation of the rejections and the corresponding reasoning.

Rejections under 35 U.S.C. 112

The Office rejected Claims 1-23 and 34-36 under 35 U.S.C. 112 as indefinite, asserting that it was unclear what was meant by the limitations "path-one" and "path-two" OPD elements or corrective elements. Applicant intended those descriptors for convenience of later reference only, and has amended the corresponding claims to make that clear. Applicant submits that the rejections under 35 U.S.C. 112 have been cured.

Rejections under 35 U.S.C. 102 based on *Ford*

The Office rejected Claims 1-4, 6, 8-21, and 23 under 35 U.S.C. 102 as anticipated by *Ford*. The Office provided an analysis of Figure 2 in *Ford*, and an explanation of how the elements of the various Claims were found in *Ford*. Applicant respectfully traverses these rejections since *Ford* does not teach all the limitations of the claims; specifically, *Ford* does not teach reflective elements in fixed angular relationships to the beam splitter.

Ford concerns an interferometer wherein the desired variation in optical path length is obtained by rotating an assembly about an axis. The reflective elements in *Ford* (reference 6 and 10 in *Ford*'s Figure 2 and the Office's analysis) mount fixedly relative to the axis, but are not fixed relative to the beam splitter. The operation of *Ford*'s interferometer relies on motion of the beam splitter relative to the reflective elements; without such motion, *Ford*'s interferometer would not provide a variable optical path length difference and would not function as an interferometer.

In contrast, Applicant's claims include the limitation that a reflective element mount in a fixed angular relationship to the beam splitter. See amended Claim 1 element d, original Claim 20 elements a and b, original Claim 23 elements a and b. In the interferometer of those claims, the beam splitter and one or both reflective elements mount in a fixed angular relationship. This limitation is not taught in *Ford*, and, were *Ford* modified to include such limitation, would destroy the utility of *Ford*'s interferometer.

For a reference to anticipate a claim, the reference must teach every limitation of the claim. Since *Ford* does not teach every limitation of independent Claims 1, 20, and 23, there is no *prima facie*

case of anticipation. Applicant submits that Claim 1, and Claims 2-4 6, and 8-19 depending therefrom; Claim 20, and Claims 21-22 depending therefrom; and Claim 23 are consequently in condition for allowance.

Rejection of Claim 5 under 35 U.S.C 103 as obvious in view of Ford

As discussed above, *Ford* does not teach or suggest the limitation of reflective elements in fixed angular relationship to the OPD element. Accordingly, even if it would be obvious to combine input and output ports of the interferometer as asserted by the Office, there is no *prima facie* case of obviousness. Applicant submits that Claim 5 is in condition for allowance.

Rejection of Claim 7 under 35 U.S.C. 103 as obvious in view of Ford and Doyle

The Office asserted that it would be obvious to incorporate the refractively scanning wedge of *Doyle* into the interferometer of *Ford*. As discussed above, *Ford* does not teach or suggest all the limitations of parent Claim 1. *Doyle* does not supply the missing teaching. Further, Applicant submits that the proposed combination is improper since it would change the principle of operation of *Ford*: *Ford* rotates an assembly to provide OPD scanning, *Doyle* moves a wedge to provide OPD scanning. Using both a moveable wedge and a rotating assembly would not produce the invention of Claim 7, but would instead result in an interferometer with two means of scanning OPD, and consequently multiplied fabrication, alignment, maintenance, and operation errors. Replacing *Ford*'s OPD scanning with *Doyle*'s would change the principle of operation of *Ford*. Accordingly, the proposed combination is improper.

Since the art does not teach or suggest all the limitations of Claim 7, and since the proposed combination is improper, and since, even if the combination was proper, it does not produce the claimed invention, there is no *prima facie* case of obviousness of Claim 7. Applicant submits that claim 7 is in condition for allowance.

Rejections of Claims 24-26 and 28-37 under 35 U.S.C. 103 as obvious in view of Cabib

The Office rejected Claims 24-26 and 28-37 under 35 U.S.C. 103 as obvious in view of *Cabib*. Applicant respectfully traverses these rejections, since the arrangement of elements taught by *Cabib* does not teach the arrangement of elements defined by the claims.

Cabib teaches an interferometer with two reflective elements establishing optical paths with the beamsplitter, as noted by the Office. *Cabib*'s reflective elements, however, are not arranged as defined in the subject claims. In *Cabib*, each optical path goes from the beamsplitter to one reflective element, then to the other reflective element, then back to the beamsplitter. See, e.g., *Cabib*'s figures reproduced in the Office Action.

In contrast, Applicant's independent claims 24 and 37 both require that the reflective elements be arranged to provide an optical path that goes from the beamsplitter to a reflective element, to the other reflective element, back to the first reflective element, then back to the beam splitter. The path thus impinges twice on the first reflective element; in *Cabib*, the path impinges on each reflective element only once. There is no teaching or suggestion in *Cabib* of the optical paths recited in Applicant's claims 24 and 37. Accordingly, since *Cabib* does not teach or suggest all the limitations of Applicant's claims 24 and 37, there is no *prima facie* case of obviousness. Applicant submits that Claim 24, and Claims 25-26 and 28-36, and Claim 37, are in condition for allowance.

Rejections of Claims 27 and 38 under 35 U.S.C. 103 as obvious in view of Cabib and Doyle

As discussed above, *Cabib* does not teach or suggest the optical paths recited in the parent Claim 24. *Doyle* does not teach or suggest such paths, either. Accordingly, the art does not teach or suggest all the limitations of Claim 27, and there is no *prima facie* case of obviousness. Applicant submits that Claim 27 is in condition for allowance.

Claims 22 and 39

The Office made no art-based rejections of Claims 22 and 39. Applicant submits that, as discussed above, the rejection of Claim 22 under 35 U.S.C. 112 has been cured. Accordingly, there being no rejections, Applicant submits that Claims 22 and 39 are in condition for allowance.

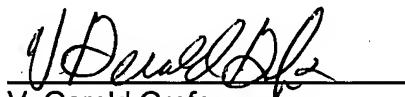
Claims 17-19 and 34-26

Claims 17-19 and 34-36 each recite a limitation to one or more corrective elements. The Office identified no such elements in the art. Accordingly, there is no *prima facie* case of anticipation or obviousness. Applicant submits that Claims 17-19 and 34-36 are in condition for allowance.

Conclusion

Applicant has responded to each and every rejection and urges that the Claims as presented are in condition for allowance. Applicant requests expeditious processing to issuance.

Respectfully submitted,



V. Gerald Gafe

Dec 10, 2004

date

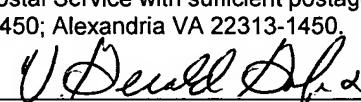
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